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Managerial Overconfidence and Information Opacity: Evidence from China

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Abstract

This study examines how managerial overconfidence affects information opacity in China... We find that overconfident managers significantly increase information opacity. This effect is amplified in firms embedded in strong Confucian cultural environment, where hierarchy and harmony norms suppress the effectiveness of board oversight. However, external governance mechanisms are found effective in constraining overconfidence-induced opacity. Our findings suggest that the overconfidence-opacity relationship is contextually dependent and varies with cultural environment and governance quality. The results carry important implications for regulators and investors in the Chinese emerging market.

Keywords: *Managerial overconfidence, Information opacity, Confucian culture, Corporate governance, Managerial disclosure*

JEL Classifications: M12, M14, G14, G34.

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1. Introduction

Transparency and quality of corporate disclosures are considered key factors for efficient capital allocation and investor protection. In recent years, a growing body of research examines how managerial psychological traits shape a firm's information environment. Among these traits, *managerial overconfidence*, the tendency of executives to overestimate their own capabilities and future outcomes, has emerged as an important characteristic. While considerable attention has been given to the impact of managerial overconfidence on investment and financing decisions, its effects on disclosure quality and information opacity remain theoretically contested and empirically underexplored.

Two competing theoretical perspectives offer contrasting predictions about how managerial overconfidence affects disclosure practices. The behavioral bias view posits that overconfident managers tend to impair disclosure quality through distorted beliefs and over-optimistic projections. Previous research shows that by overestimating firm performance and underestimating risks, overconfident managers engage in aggressive financial reporting and suppress adverse information, thereby increasing information opacity (Choi et al., 2024; Schrand & Zechman, 2012). Many studies offer empirical evidence supporting this view and report that overconfident managers lower accounting conservatism (Ahmed & Duellman, 2013; Qiao et al., 2024) and increase the propensity of financial restatements (Kim & Mun, 2025; Presley & Abbott, 2013).

In contrast, the signaling theory perspective suggests overconfident managers enhance disclosure quality to validate their optimistic outlook. The underlying argument is that if managers believe their firm is undervalued, they may provide more extensive disclosures

to align market's perceptions with their own assessments (Hribar et al., 2022; Libby & Rennekamp, 2012). The available empirical evidence supports this view and shows a positive associations between overconfidence and voluntary disclosure among US firms (Hribar & Yang, 2016) and non-financial information disclosures in emerging markets of Jordan and China (Alqatamin et al., 2017; Hu et al., 2024). Furthermore, findings reported by Cole & Jones (2015) and Muslu et al. (2015) imply that managerial overconfidence may reduce information asymmetry through increased disclosures.

This study addresses the above controversy in the existing literature by examining the relationship between managerial overconfidence and information opacity in China. The Chinese settings present a compelling context for three key reasons. First, despite copious literature on managerial overconfidence, relatively little is known about its influence on disclosure practices in emerging markets like China, where weak institutional environment and less effective governance may amplify its adverse effects (He et al., 2019). Second, China's unique cultural and institutional characteristics provide a fertile ground for examining how managerial overconfidence is affected by both internal and external governance structures. Further, the presence of Confucianism in China that emphasizes hierarchy, authority, and relational harmony, may foster an environment where overconfident managers face less scrutiny (Acker & Duck, 2008; Meisel et al., 2016). Chen et al. (2022) show that Confucian values reduce the likelihood of boardroom dissent, thereby weakening internal governance mechanisms that are critical for constraining managerial bias. Third, concerns about corporate transparency in China are well-documented. During 2011–2021, over 90% of corporate misconduct cases in China were related to disclosure violations (Hu et al., 2024). This highlights a need for research to understand how behavioral bias drive opacity in Chinese market. Moreover, recent regulatory reforms aimed at improving disclosure practices and investor protection

underscore the policy relevance for investigating the disclosure behavior of Chinese firms (Cheng et al., 2013; Ho et al., 2024).

To address these issues, we conduct a comprehensive analysis of the impact of managerial overconfidence on information opacity, as well as the moderating roles of culture and external governance mechanisms. Given the inherent challenges in observing psychological traits directly, we rely on two well-established proxies for overconfidence. The first is an investment-based proxy, excessive capital expenditures relative to expected levels, adapted from Ahmed & Duellman (2013). The second is a demographic-based composite indicator following Han et al. (2024) and Liang et al. (2019) that captures managerial traits commonly associated with overconfidence, including age, gender, educational attainment, tenure, and CEO-chair duality. We measure information opacity, by the disclosure quality index of Kim & Verrecchia (2001) and Amihud's (2002) illiquidity measure, both of which have been extensively validated in prior literature.

Our results reveal a robust and economically significant positive relationship between managerial overconfidence and information opacity. Firms led by overconfident executives exhibit poorer disclosure quality and higher stock illiquidity in the following year. We find that this relationship is significantly amplified in firms located in regions with stronger Confucian cultural influence, supporting arguments that cultural values reinforcing deference and harmony weaken internal oversight. Interestingly, manager-level Confucian backgrounds do not significantly moderate the relationship, suggesting that Confucianism operates primarily through institutional norms rather than individual-level preferences.

We also find that external governance mechanisms play a critical role in constraining overconfident managerial behavior. Independent analyst coverage and long-term

institutional investor ownership significantly attenuate the positive association between overconfidence and information opacity, highlighting the importance of external monitoring in mitigating behavioral distortions in corporate disclosures.

We conduct a series of sensitivity tests to ensure the robustness of our results. We address potential endogeneity using the Two-Stage Least Squares (2SLS) instrumental variable approach and the Heckman two-step method. We also use alternative measures of managerial overconfidence derived from management disclosure tone and earnings forecast bias, and alternative opacity measures, including stock price synchronicity and a modified Amihud illiquidity index. We find that, using alternative specifications, proxies and methods, our baseline results remain qualitatively consistent.

This paper makes several key contributions. First, it extends the managerial overconfidence literature by providing new evidence that overconfident managers increase information opacity, particularly in emerging markets with weaker internal governance. Second, the paper contributes to the growing literature on the influence of culture on managerial behavior by exploring how Confucian culture values affect managerial decision making in China. Third, the paper offers additional evidence on the disciplining role of external oversight in mitigating the adverse effects of managerial bias on corporate disclosures. Collectively, these insights enhance our understanding of how individual traits, institutional settings, and cultural norms shape corporate information environment.

The remainder of the paper is organized as follows. Section 2 reviews the relevant literature. Section 3 describes the data and methods used in the study. Section 4 presents and discusses the empirical findings. Section 5 provides results of robustness tests. Section 6 concludes the paper.

2. Literature Review and Hypothesis Development

2.1. Managerial Overconfidence and Information Opacity

2.1.1. Theoretical Foundations

Managerial overconfidence can be characterized by the systematic overestimation of one's abilities and reliance on private information. It represents a pervasive cognitive bias with significant implications for corporate information environment (Malmendier & Tate, 2005). The extant literature identifies three primary mechanisms through which overconfidence adversely affects information quality.

First, overconfident managers engage in selective disclosure practices, by highlighting favorable news while delaying or suppressing the release of negative information (Lin et al., 2019). Their belief that the market underestimates their firms' intrinsic value leads them to strategically manage information flows to align with their optimistic outlook (Andreou et al., 2018; Ge et al., 2024; Jory et al., 2025; Malmendier & Tate, 2005). This creates information asymmetry and reduces transparency.

Second, when actual performance fails to meet overly optimistic expectations, overconfident executives resort to aggressive earnings management by manipulating both accounting accruals and real activities (Hsieh et al., 2014; Qiao et al., 2023). Such practices compromise financial statement reliability and obscure true economic performance.

Third, overconfident managers reduce accounting conservatism by systematically overestimating future investment returns and firm performance (Ahmed & Duellman, 2013; Kim et al., 2016; Qiao et al., 2024). Since conservative reporting enhances transparency and verifiability (Ahmed et al., 2002; Kim & Zhang, 2016; Kim et al., 2013),

this directly contributes to increasing information opacity.

2.1.2. Empirical Evidence

Extensive empirical research corroborates the theoretical predictions linking managerial overconfidence to inferior information quality. Schrand & Zechman (2012) demonstrate that overconfident managers issue overly optimistic forward-looking statements, thereby reducing disclosure credibility. Similarly, Hribar & Yang (2016) report that overconfident CEOs provide less accurate earnings forecasts, a finding which is also supported by Hurwitz (2018) and Stuart et al. (2025).

Recent research extends this evidence to specific disclosure contexts. Le et al. (2024) show that overconfident CEOs conceal information about risky activities, increasing private information collection costs and reducing stock price informativeness. The earnings management channel provides particularly compelling evidence, with Ahmed & Duellman (2013) documenting that overconfident managers engage more heavily in income-increasing accruals, while Choi et al. (2024) find evidence of increased likelihood of expense reclassification to boost reported earnings.

Furthermore, overconfident managers demonstrate systematic patterns of withholding negative information, contributing to future stock price crashes (Hutton et al., 2009; Kim et al., 2016; Liang et al., 2019). This evidence indicates deliberate hoarding of adverse information substantially reducing transparency.

While some studies argue that overconfident CEOs could enhance disclosure quality to support their optimistic projections and reduce financing costs (e.g., Bai et al., 2022), this perspective may not hold in institutional environments with weak investor protection. In

settings with inadequate legal frameworks and enforcement mechanisms, overconfident managers face fewer external constraints on their disclosure behavior and may exploit information asymmetries for private benefit rather than improving transparency. The institutional environment plays a crucial role in shaping managerial incentives regarding disclosure practices. In an international study of 31 countries, Leuz et al. (2003) find that strong investor protection limits insiders' ability to acquire private control benefits, which reduces their incentives to undertake earnings management to mask firm performance from outsiders. Similarly, Xiao (2013) observes that legal shareholder rights reduce both underinvestment and overinvestment in R&D projects, while Bourveau et al. (2025) report evidence that enhanced regulatory monitoring decreases tunneling activities.

China's institutional context, characterized by inadequate investor protection and evolving corporate governance standards and practices , adversely affect quality of corporate disclosures (Carpenter et al., 2021; Jiang & Kim, 2020). Notably, between 2011 and 2021, over 90% of regulatory violations among Chinese listed firms involved disclosure failures (Hu et al., 2024). As Cheung & Hu (2019) argue, increased disclosure could become less informative in imperfect capital markets. Therefore, we hypothesize:

H1: Firms with overconfident managers will exhibit higher information opacity.

2.2. Cultural Context: Confucian Values and Corporate Governance

2.2.1. *Confucian Culture and Managerial Behavior*

There is growing awareness that cultural norms can shape managerial behavior and governance dynamics. In China, Confucian cultural values which represent a powerful informal institution have a strong influence on managerial conduct, ethical orientation, and governance dynamics (Chen et al., 2019; Du, 2015; Fan & Xu, 2022; Zhu et al., 2025).

Confucianism emphasizes the moral virtues of benevolence, righteousness, propriety, wisdom, and trust. These principles serve as informal governance mechanisms by encouraging socially responsible behavior and discouraging opportunism, especially in settings with underdeveloped formal institutions (Tan & Wang, 2023). Central to Confucian thought is the prioritization of harmony, respect for hierarchy and social order in interpersonal and organizational relationships (Hwang, 1997; Li, 2006; Tao, 2010).

2.2.2. *Theoretical Ambiguity and Competing Effects*

The relationship between Confucian values and managerial overconfidence is theoretically ambiguous. On one hand, Confucian collectivism may reduce overconfidence by promoting modesty, group consensus, and aversion to excessive individualism (Chui et al., 2010). Hofstede's (2001) cultural dimensions reveal that Confucian-influenced societies exhibit significantly lower levels of individualism than Western cultures.

On the other hand, Confucian norms of harmony and deference to authority may suppress dissenting voices within corporate boards, enabling overconfident managers to operate without oversight (Chen & Chung, 1994; Chen & Ma, 2002). Such cultural aversion to openness may reduce governance effectiveness and facilitate information opacity.

2.2.3. *Empirical Evidence and Hypothesis Development*

Findings reported in empirical studies reflect these competing perspectives. Confucian culture is found to be associated with improved ethical standards (Du, 2015), enhanced investment efficiency (Chen et al., 2019), and reduced greenwashing behavior (Song et al., 2025). However, Confucian values can also inhibit board gender diversity (Du, 2016), reduce risk tolerance (Jiang & Yu, 2025), and suppress critical oversight by auditors and directors (Chen et al., 2022; Fan & Xu, 2022). Confucian norms may thus simultaneously

promote virtue and impair governance.

To disentangle these competing mechanisms, we examine the moderating effects of Confucian culture at both firm-level and individual levels. [1] The firm-level effect may amplify overconfidence-opacity relationships if cultural harmony norms suppress board oversight, while chairperson-level effects may mitigate these relationships if personal Confucian values promote virtue and transparency. Accordingly, we propose:

H2a: The positive relationship between managerial overconfidence and information opacity is amplified in firms embedded in a strong Confucian cultural environment.

H2b: The positive relationship between managerial overconfidence and information opacity is mitigated in firms led by a chairperson with strong Confucian culture.

2.3. External Governance Mechanisms and Monitoring Effectiveness

2.3.1. *Governance Quality and Overconfidence Moderation*

Strong external governance mechanisms should mitigate the effects of managerial overconfidence on information quality. Extensive research demonstrates that effective governance reduces financial reporting irregularities (Beasley, 1996; Farber, 2005; Klein, 2002) and increases conservative accounting practices (Chen et al., 2018; Leventis et al., 2013).

However, evidence on whether governance moderates the overconfidence–information opacity link remains inconclusive. Ahmed & Duellman (2013) find no evidence that monitoring systems affect the relationship between CEO overconfidence and accounting

[1] Our focus on chairperson characteristics rather than CEO traits reflects the unique governance structure in China, where chairpersons serve as the primary decision-makers with the highest organizational authority (Wang et al., 2021).

conservatism. These findings may reflect limitations of conventional governance proxies, which often emphasize board independence and overlook the role of external governance mechanisms. Moreover, overconfident CEOs often consolidate power, diminishing the effectiveness of internal monitoring mechanisms (Fracassi & Tate, 2012; Hwang et al., 2020; Vitanova, 2021).

2.3.2. *External Oversight: Financial Analysts*

Financial analysts provide important external oversight. However, their effectiveness in constraining overconfident managers is conditional on their expertise and independence. Kramer & Liao (2016) observe that analysts tend to issue overly optimistic forecasts for firms with overconfident CEOs, compromising their monitoring function. In contrast, Lin et al. (2019) show that analysts leverage their research capabilities in scrutinizing disclosures by overconfidence managers.

The effectiveness of monitoring by financial analysts in China is challenged by Jiang & Kim (2020)). They suggest that discretion of controlling shareholders in corporate disclosures hinders securities analysts from effectively monitoring insiders. Additionally, analysts in investment banks tend to compromise objectivity. Empirical studies demonstrate that analysts firms that act as underwriters face conflicts of interest, resulting in biased forecasts (Chan et al., 2020; Huyghebaert & Xu, 2016). In contrast, independent analysts without financial interests exert more disciplinary pressure on managers, thereby enhancing disclosure quality and reducing opacity (Gu & Xue, 2008; Xue, 2017).

2.3.3. *Institutional Investors*

Institutional investors can be key external monitors. However, their effectiveness may vary by investment horizon and monitoring incentives. Long-term institutional investors hold

concentrated stakes and engage in active oversight, while short-term investors pursue short-term gains and have limited monitoring incentives (Bushee, 2001; Fich et al., 2015; Miller et al., 2022; Zhou et al., 2025).

Lin (2016) reports that long-term institutional ownership enhances accounting conservatism, while transient ownership does not. Similarly, Lin et al. (2024) find that long-term investors improve the readability and informativeness of environmental disclosures, further highlighting their monitoring role.

Accordingly, we develop the following hypothesis:

H3: Strong external oversight will negatively affect the positive relationship between managerial overconfidence and information opacity.

3. Data and Methodology

3.1. Data and Sample Construction

Our sample comprises all A-share listed firms in China from 2008 to 2022. We begin our sample period in 2008 due to the limited availability of reliable corporate governance data prior to this year. We obtain data from two primary sources: the China Stock Market and Accounting Research (CSMAR) database and the WIND database. To mitigate the impact of outliers, we winsorize all financial and accounting variables at the 1% level.

We apply several exclusion criteria to refine our sample. First, we exclude firms in financial and utility sectors due to their distinct accounting and regulatory frameworks.[2] Second, we eliminate stocks with less than one year of trading history, Special Treatment (ST) stocks,

[2]In unreported results, we include financial and utility sector stocks and find that our main conclusions remain robust. These results are available from the authors on request.

Particular Transfer (PT) stocks, and stocks traded on the Beijing Stock Exchange. Third, we exclude observations with incomplete data required for our analysis. After applying these criteria, our final sample comprises 29,369 firm-year observations, representing 4,231 unique stocks.

3.2. Measurement of Managerial Overconfidence

Identifying and quantifying managerial overconfidence is central to this study. Given the multifaceted nature of overconfidence, we adopt two complementary proxies to enhance the robustness and interpretability of our empirical results: an investment-based measure (MOX) and a demographic-based composite index (MOD).

3.2.1. Investment Based Proxy (MOX)

Our primary proxy for managerial overconfidence, denoted as MOX, captures overinvestment. Prior literature documents that overconfident executives tend to overestimate their firms' prospects and incur excessive capital expenditure. The existing evidence is similar across both developed markets (Huang & Kisgen, 2013; Malmendier & Tate, 2005, 2008) and emerging markets (Chiu et al., 2022; He et al., 2019; Yang & Kim, 2020). However, capital-intensive investment may also be a rational strategic response to firm-specific conditions.

To isolate the managerial overconfidence component, we estimate residual capital expenditure after controlling for firm profitability. Specifically, we conduct industry-year regressions of the capital expenditure-to-total assets ratio on return on assets (ROA), using the China Securities Regulatory Commission's (CSRC, 2012) industry classification. The residual from this regression reflects unexplained investment, serving as a proxy for managerial overconfidence (MOX).

3.2.2. Demographic-Based Composite Score (MOD)

Our second proxy, MOD, follows the approach of Du et al. (2025), Han et al. (2024) and Liang et al. (2019). A composite index based on observable chairperson characteristics is developed using five binary indicators: (1) gender (1 for male, 0 otherwise), (2) education (1 for postgraduate degree, 0 otherwise), (3) CEO-chairperson duality (1 if dual role, 0 otherwise), (4) tenure (1 if below cross-sectional median, 0 otherwise), and (5) age (1 if below cross-sectional median, 0 otherwise).

The rationale for the proxies draws from established managerial overconfidence research. Farag & Mallin (2018) document that younger, shorter-tenured managers exhibit greater risk tolerance, while higher education correlates with increased corporate risk-taking. Gender effects are also well-documented, with male managers demonstrating relatively higher overconfidence than female counterparts (Huang & Kisgen, 2013). Managerial power concentration, particularly through CEO-chairperson duality, increases overconfidence probability (Hwang et al., 2020). We classify chairpersons as overconfident (MOD = 1) when the composite score exceeds three.

3.3. Information Opacity Measures

We employ two complementary proxies to assess information opacity: disclosure quality (KV) and Amihud's illiquidity measure (AM). These measures capture different aspects of information asymmetry between managers and external stakeholders, providing comprehensive assessment of information opacity.

3.3.1. Disclosure Quality (KV)

Following Kim & Verrecchia (2001), we assess disclosure quality by estimating the

sensitivity of share price changes to deviations in trading volume. The underlying premise is that poor disclosure quality weakens the link between price and volume, reflecting increased reliance on private information.

We estimate the following regression for each firm-year:

$$ln|\Delta P_d/P_{d-1}| = \alpha + \beta(Vol_d - Vol_0) + \varepsilon_d \quad (1)$$

where P_d is the closing price of a company on day d, Vol_d is the number of shares traded on day d, and Vol_0 is the company's average trading volume over the year. Following Zhang et al. (2023) and Qian et al. (2025), we define the KV index by multiplying the regression coefficient β by 100,000,000, an arbitrary scaling factor chosen to ensure a reasonable value range. A higher KV index indicates poorer disclosure quality and, consequently, greater information opacity (Brown & Hillegeist, 2007; Li et al., 2021). Consistent with prior studies (Ascioglu et al., 2005; Zhang et al., 2023), we exclude observations with a negative β or a zero ΔP_d from the sample.

3.3.2. Amihud's Illiquidity Measure (AM)

The Amihud (2002) illiquidity measure serves as an alternative proxy for information opacity, calculated as the annual average ratio of absolute daily return to daily trading volume in CNY. Higher values reflect lower liquidity and, by implication, greater information asymmetry.

The measure is grounded in market microstructure theory, which posits that illiquidity arises from adverse selection and private information (Copeland & Galai, 1983; Glosten & Milgrom, 1985; Kyle, 1985). Empirical studies further support the association between poor disclosure and low liquidity (Abedin et al., 2024; Boubaker et al., 2019).

3.4. Empirical Models

3.4.1. Baseline Model

To test our primary hypothesis regarding the relationship between managerial overconfidence and information opacity, we estimate the following model:

$$IO_{i,t} = \alpha + \beta MO_{i,t-1} + Controls_{i,t-1} + Ind_{FE} + Year_{FE} + \varepsilon_{i,t} \quad (2)$$

where $IO_{i,t}$ represents the Information Opacity (IO) at time *t* proxied by KV and AM, $MO_{i,t-1}$ denotes managerial overconfidence proxied by MOX and MOD for stock i at time *t - 1*. Control variables include the natural logarithm of market capitalization (SIZE), book-to-market ratio (BM), the 11-month momentum returns (MOM), return on equity (ROE), annual growth of book value of assets (GROW), leverage ratio (LEV), idiosyncratic volatility (IVOL), and annual stock turnover ratio (ASTO). Industry (Ind) and year (Year) fixed effects account for sectoral and temporal heterogeneity, and ε represent the random error term. Variable definitions are provided in Appendix 1.

3.4.2. Influence of Culture

We investigate the influence of Confucian culture using geographic proximity to Confucian temples, used in previous studies on China (Chen et al., 2019; Du, 2015). Two measures are constructed: (1) Firm-level Confucian culture (CONF), the natural logarithm of Confucian temples within 200 kilometers of the firm's registered city, and (2) Chairperson-level Confucian culture (CHRC), the corresponding metric calculated with the chairperson's birthplace.

The following model is used :

$$IO_{i,t} = \alpha + \beta Culture_{i,t-1} + \gamma MO_{i,t-1} + \delta Culture_{i,t-1} \times MO_{i,t-1} + Controls_{i,t-1} + Ind_{FE} + Year_{FE} + \varepsilon_{i,t} \quad (3)$$

where $Culture_{i,t-1}$ denotes the Confucian culture intensity, proxied by either CONF or CHRC at time *t-1*. $MO_{i,t-1}$ and control variables are the same as in Model 2.

3.4.3. Influence of Quality of External Governance

To assess how the oversight of external governance influences the overconfidence-opacity relationship, we employ two proxies: independent financial analyst coverage (ANA) and long-term institutional investors' shareholding (INST). Following Kent et al. (2024), independent analysts are defined as those unaffiliated with firm's equity-raising activities,. Similar to Fich et al. (2015), we define a firm's long-term institutional investors as those whose shareholding of the firm ranks within the top 10% of their total portfolio.

The following model is used:

$$IO_{i,t} = \alpha + \beta GOV_{i,t-1} + \gamma MO_{i,t-1} + \delta GOV_{i,t-1} \times MO_{i,t-1} + Controls_{i,t-1} + Ind_{FE} + Year_{FE} + \varepsilon_{i,t} \quad (4)$$

where $GOV_{i,t-1}$ denotes the external governance mechanism, proxied by either ANA or INST at time *t-1*. The interaction term ($GOV_{i,t-1} \times MO_{i,t-1}$) tests whether governance mechanisms attenuate the effect of overconfidence on opacity.

4. Empirical Results

4.1. Summary Statistics

Table 1 presents the descriptive statistics for our sample. The mean values for our information opacity proxies are 0.130 for KV and 0.499 for AM, which are consistent with prior studies on China' stock markets. For instance, Wu et al. (2024) report a mean KV of 0.125 for Chinese listed stocks from 2017 to 2022, while Huang et al. (2024) document a mean AM of 0.367 for Chinese listed firms from 2008 to 2018.

[Insert Table 1 About Here]

Our primary managerial overconfidence proxy (MOX) exhibits a mean of -0.002 with a standard deviation of 0.065, ranging from -0.141 to 0.260. This distribution suggests that most firms exhibit modest deviations in investment behavior, with relatively few instances of extreme overconfidence. The demographic-based composite score (MOD) yields a mean of 0.193, indicating that approximately 19% of firm-year observations are classified as having overconfident chairpersons based on personal characteristics.

The descriptive statistics for control variables align with prior studies of Chinese firms (e.g., Han & Shi, 2022). The average firm size (log of market capitalization) is 22.070, while the mean book-to-market ratio (BM), momentum (MOM), return on equity (ROE), and asset growth (GROW) are 0.375, 0.190, 0.057, and 0.297, respectively. The average leverage (LEV) is 0.412, idiosyncratic volatility (IVOL) is 0.118, and stock turnover (ASTO) is 4.703.

Table 2 presents the correlation matrix for key variables. Both MOX and MOD are significantly negatively correlated with SIZE, BM, and LEV at the 1% level, suggesting that overconfident managers have a greater presence in smaller, growth-oriented firms with relatively lower leverage. Conversely, both managerial overconfidence proxies are positively and significantly correlated with KV, AM, MOM, ROE, GROW, IVOL, and ASTO. The results suggest that overconfident managers are associated with greater information opacity, higher profitability, greater firm-specific risk, and stronger market momentum. Variance Inflation Factor (VIF) diagnostics confirm no issues of multicollinearity, with all VIFs below 1.8.

[Insert Table 2 About Here]

4.2. The Impact of Managerial Overconfidence on Information Opacity

We begin by estimating our baseline regression model (Equation 2) to assess the effect of managerial overconfidence on information opacity. Table 3 presents the estimation results, using KV and AM as dependent variables and MOX and MOD as the key independent variables.

[Insert Table 3 About Here]

4.2.1. Baseline Results

The results provide robust empirical support for Hypothesis 1. Across all four model specifications where both overconfidence proxies are positively and significantly associated with information opacity at the 1% level. Specifically, overconfident managers, measured through either excessive capital investment (MOX) or personal traits (MOD), are more likely to increase the information opacity in the following year.

In Columns (1) and (3), the dependent variable is KV, the disclosure quality measure based on the trading volume–price sensitivity model of Kim & Verrecchia (2001). In Columns (2) and (4), we use Amihud's (2002) illiquidity proxy (AM) as an alternative opacity proxy. The consistency of positive and significant coefficients across both proxies suggests that the association between managerial overconfidence and information opacity is robust to measurement choices. The findings confirm that overconfident managers impair information transparency.

4.2.2. Control Variables

The signs and significance levels of the control variables offer further validation of our model specification. Firm size (SIZE) and book-to-market ratio (BM) are consistently negatively associated with information opacity, in line with prior studies indicating that larger and more mature firms tend to maintain more transparent disclosure practices (Ravi & Hong, 2014).

Annual Stock Turnover (ASTO) is negatively associated with opacity, supporting Chae's (2005) argument that greater trading volume reduces adverse selection and improves transparency. In contrast, momentum (MOM), return on equity (ROE), and asset growth (GROW) are positively related to opacity. This is consistent with the perspective that strong stock price momentum and earnings momentum can, in certain circumstances, reflect increased uncertainty surrounding the accuracy of future cash flow forecasts (Han et al., 2009). Additionally, idiosyncratic volatility (IVOL) exhibits a strong positive association with opacity, consistent with the notion that greater firm-specific risk reflects higher information asymmetry (Krishnaswami & Subramaniam, 1999; Yang et al., 2020). Leverage (LEV) shows a negative relationship with opacity, possibly due to creditor scrutiny constraining managerial discretion.

4.3. The Role of Confucian Culture

To examine the influence of Confucian culture, we estimate the model specified in Equation 3 using two proxies: firm-level Confucian culture (CONF) and chairperson-level Confucian cultural background (CHRC). The results are presented in Table 4.

4.3.1. Firm-level Confucian Culture

Panel A reports results using CONF. The interaction terms between CONF and both MOX and MOD are positive and significant at the 5% level or better. These support

Hypothesis 2a and suggest that Confucian culture at the firm level amplify the adverse impact of managerial overconfidence on information transparency.

This amplifying effect can be attributed to Confucianism's emphasis on hierarchy, respect for authority, and conflict avoidance. These cultural features may reduce board members' willingness to challenge managerial decisions, weaken internal monitoring mechanisms and contribute to e information opacity.

4.3.2. Chairperson-level Confucian Background

Panel B tests Hypothesis 2b by examining the moderating effect of the chairperson's Confucian background. Contrary to expectations, the interaction terms between CHRC and the overconfidence proxies are statistically insignificant. These results suggest that the chairperson's cultural background does not significantly alter the overconfidence-opacity relationship. This finding may reflect the limited influence of personal culture values in China where institutional and organizational factors dominate corporate decision-making.

4.4. The Role of External Governance Mechanisms

We further examine whether external oversight mitigates the effects of managerial overconfidence on information opacity using Equation 4. Specifically, we test the effects of independent financial analyst coverage (ANA) and long-term institutional ownership (INST) On the relationship between managerial overconfidence and information opacity.

4.4.1. Independent Financial Analysts

Results in Table 5 show that the interaction terms between ANA and both MOX and MOD are negative and statistically significant across all specifications. These results strongly support Hypothesis 3 and confirm the role of independent analysts as an effective

external governance mechanism. . The results imply that independent analysts may deter opportunistic behavior of overconfident managers by challenging management narratives, publishing skeptical reports, and increasing public scrutiny.

[Insert Table 5 About Here]

4.4.2. Long-term Institutional Investors

Results in Table 6 presents show that the interaction terms are also negative and statistically significant. For instance, the coefficient of INST x MOX is -0.002 (t-statistic = -3.135), which is significant at the 1% level. The results imply that long-term institutional investors play a critical role in mitigating the adverse consequences of managerial overconfidence in information transparency. Our evidence is consistent with the past studies showing that long-term investors possess both the resources and incentives to monitor managerial behavior effectively (Bushee, 2001; Fich et al., 2015; Miller et al., 2022).

[Insert Table 6 About Here]

Taken together, both independent analysts and long-term institutional investors can be considered highly effective in providing the necessary oversight to constrain overconfident executives from manipulating or withholding firm-specific information and thus contributing to improved transparency.

5. Robustness Checks

5.1. Endogeneity Concerns

5.1.1. Two-Stage Least Squares (2SLS) Approach

A primary concern in establishing the causal effect of managerial overconfidence on

information opacity is the potential endogeneity arising from reverse causality. In other words, while overconfident managers may create information opacity, it is plausible that opaque settings may foster overconfidence due to lack of feedback and/or effective external monitoring .

Jiang et al. (2010) suggest that poor disclosure environment limits stakeholder feedback, allowing managerial misperceptions to persist and/or intensify. Similarly, Bai et al. (2016) demonstrate that managers rely on stock prices to infer firm value, and that opacity reduces the informativeness of stock prices, potentially leading to erroneous investment decisions and reinforcing managerial overconfidence. In firms with weak governance structures and limited transparency, inflated managerial self-assessments may become self-perpetuating, thereby compounding the opacity problem.

To address endogeneity concerns, we employ a Two-Stage Least Squares (2SLS) instrumental variable approach following Wooldridge (2013). We use the natural log of management compensation (SALARY) as the instrument variable for managerial overconfidence. The variable satisfies both the relevance and exogeneity conditions. First, prior literature links managerial power and compensation to psychological overconfidence (Fast et al., 2012; See et al., 2011; Song & Wan, 2019; Tost et al., 2012). Second, there is no theoretical basis to assume a direct causal relationship between management compensation and future information opacity, supporting the exclusion restriction.

Table 7 presents the 2SLS results. In Panel A, the first-stage regression shows a positive and significant association between SALARY and the overconfidence proxy (MOX), with a coefficient of 0.013 (t = 3.129). The Kleibergen–Paap LM statistic (9.82) rejects under-

identification at the 1% level, and the Cragg–Donald Wald F statistic (29.92) exceeds the Stock–Yogo weak identification threshold, confirming the strength of the instrument. The second-stage regression reveals that MOX remains positively and significantly associated with both next-year KV and AM, with coefficients of 1.827 and 5.460, respectively. Panel B reports similar results where MOD is used as an alternative proxy, confirming the robustness of our baseline findings.

[Insert Table 7 About Here]

5.1.2. Heckman Two-Step Method

Firms' decisions to engage in significant investment activities may not be random but influenced by firm-specific characteristics such as availability of external equity financing and/or internal cashflow (Beatty et al., 1997). To address such self-selection bias, we apply the widely used Heckman (1979) two-step correction model.

In the first stage, we construct a binary indicator (CAPEX_dum) that equals 1 if a firm's capital expenditures-to-assets ratio exceeds the industry-year median, and 0 otherwise. We estimate a probit model using independent variables including presence of recent equity financing, operating cashflows to assets ratio, firm size, return on equity, sales growth, and leverage.

In the second stage, we include the inverse Mills ratio (IMR) from the first stage as a control in our regression model. Table 8 reports the second-stage regression results. The IMR coefficients are significantly positive across all model specifications, confirming the selection bias. However, the coefficients for both MOX and MOD remain positive and

significant at the 1% level across all settings, indicating that the overconfidence-opacity relationship persists even after correcting for the self-selection bias.

[Insert Table 8 About Here]

5.2. Alternative Proxies for Managerial Overconfidence

5.2.1. Management Disclosure Tone (MOT)

To assess the sensitivity of our results to alternative measures of managerial overconfidence, we construct two additional proxies. The first proxy, MOT, captures the tone of managerial disclosures based on textual analysis of the Management Discussion and Analysis (MD&A) sections of annual reports. Following prior studies (Brown et al., 2024; Hribar et al., 2022), we quantify tone using the Loughran & Mcdonald's (2011) dictionary as the net difference between positive and negative word frequencies, normalized by total word count.

To adjust for economic and industry-level variation in disclosure tone, we regress this raw tone measure on annual revenue growth within industry groupings and use the residual as our optimism-adjusted proxy (MOT) similar to Yan et al. (2019) and Gu et al. (2022).

5.2.2. Management Earnings Forecast Accuracy (MOF)

Consistent with previous research, we employ management earnings forecasts (MOF) as an alternative proxy for managerial overconfidence. Prior work has frequently utilized calibration analysis, comparing managers' predictions against actual outcomes to construct behavioral signals of overconfidence (e.g., Hao et al., 2023; He et al., 2019). Consistent with this approach, our MOF proxy specifically measures managerial forecast error via a dummy variable that takes a value of one when actual earnings fall short of management's

guidance and zero otherwise. .[3]

The results from re-estimation of baseline model using MOT and MOF as proxies, in Table 9 show that both MOT and MOF are significantly positively associated with KV and AM at the 5% level or better. These findings confirm that our finding that managerial overconfidence increases information opacity is not dependent on the choice of overconfidence proxy.

[Insert Table 9 About Here]

5.3. Alternative Measures of Information Opacity

5.3.1. Stock Price Synchronicity (SYN)

To ensure further robustness, we test our hypothesis using two alternative proxies for information opacity. The first is stock price synchronicity (SYN), following Morck et al. (2000), which measures the degree to which a firm's returns co-move with market and industry returns. Higher synchronicity reflects lower firm-specific information embedded in stock prices and thus higher opacity (Gul et al., 2010; Jin & Myers, 2006).

We calculate SYN using weekly returns data for all stocks in our sample, excluding those with fewer than 30 weeks of valid returns in a year. The adjusted R^2 from the following model is used to compute SYN:

$$r_{a,t} = a_0 + a_1 r_{m,t} + a_2 r_{i,t} + \varepsilon_{i,t} \quad (5)$$

where $r_{a,t}$ is the return on stock *a* in week t, $r_{m,t}$ is the average return of the stock market in week t, and $r_{i,t}$ refers to the average return for the industry corresponding to stock *a* in

[3] As management earnings forecasts are not a mandatory disclosure in China, requiring MOF availability for analysis results in a reduction of the sample from 29,369 to 17,275 observations.

week *t*. The industry classification follows the CSRC codes. Since R^2 values range between 0 and 1 and do not conform to a normal distribution, we apply a logistic transformation to compute the stock price synchronicity index (SYN):

$$SYN = \ln\left(R^2/(1-R^2)\right) \quad (6)$$

5.3.2. Modified Amihud Illiquidity Measure (AI)

The second proxy that we use is a modified version of Amihud's (2002) illiquidity measure. While the Amihud measure is widely recognized, previous research suggests that its effectiveness diminishes in emerging markets with numerous non-trading days (Kang & Zhang, 2014). To address this limitation, we construct a modified Amihud illiquidity measure (AI) as follows:

$$AI = \frac{1}{N_{i,m}} \times \sum_{t=1}^{N_{i,m}} \frac{|R_{i,t}|}{Vol_{i,t}} \times (1 + ZeroVol_{i,m}) \quad (7)$$

where $N_{i,m}$ is the number of days with non-zero trading volume for stock *i* in year *m*, $|R_{i,t}|$ is the absolute value of the return on stock *i* on day *t*, $Vol_{i,t}$ is the trading volume of stock *i* in Chinese Yuan on day *t*, and $ZeroVol_{i,m}$ is the proportion of zero-volume days within year *m*. A higher AI value suggests lower liquidity and greater information opacity.

5.3.3. Results with Alternative Proxies

Table 10 presents results using SYN and AI as dependent variables. In all specifications, the overconfidence proxies (MOX and MOD) are positively and significantly associated with both SYN and AI, reinforcing the view that overconfident managers exacerbate information opacity. These findings are consistent with Hypothesis 1 and confirm that our main results are robust to alternative measures of both independent and dependent variables.

[Insert Table 10 About Here]

6. Conclusions

The paper investigates the effect of managerial overconfidence on information opacity in China's emerging stock market, with a focus on the moderating roles of culture and external governance mechanisms. By integrating insights from managerial behavior and institutional theory, we provide novel empirical evidence on how managerial cognitive biases shape firms' information environment.

Our findings reveal a robust positive relationship between managerial overconfidence and information opacity. Using two distinct overconfidence proxies, excessive capital expenditures and chairperson demographic characteristics, we find that overconfident executives systematically reduce disclosure quality and increase stock illiquidity, thereby exacerbating information asymmetry and impairing price discovery.

Importantly, cultural context significantly conditions this relationship. Firm-level Confucian culture, characterized by deference to authority and conflict avoidance, amplifies the adverse effects of managerial overconfidence on information transparency by weakening the board's effectiveness. However, our findings suggest that the chairperson's individual Confucian background does not significantly influence this relationship. The results imply that that organizational factors dominate personal cultural influences in corporate decision-making in the China's emerging market.

Conversely, external governance mechanisms serve as effective constraints on overconfident managers. Both independent financial analyst coverage and long-term institutional ownership significantly weaken the overconfidence-opacity link, highlighting

their critical role in enhancing disclosure quality through oversight.

This study contributes to managerial overconfidence literature by demonstrating that the impact of managerial cognitive biases is context-dependent, shaped by both cultural values and governance structures. From a policy perspective, our findings emphasize the importance of strengthening external monitoring mechanisms in markets where internal governance may be culturally constrained. For investors and regulators, our findings imply that recognizing the interplay between managerial traits, cultural context, and monitoring effectiveness is essential for improving transparency and protecting investors' interests in emerging economies like China.

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Table 1 Descriptive statistics

This table reports descriptive statistics for information opacity measures, managerial overconfidence proxies, and control variables. KV is the Kim & Verrecchia (2001) information disclosure quality measure, and AM is the Amihud's (2002) illiquidity measure; higher values indicate greater information opacity. MOX is the residual from an industry-year regression of capital expenditures (scaled by lagged assets) on ROA. MOD equals one if the chairperson's demographic composite score exceeds three, and zero otherwise. Control variables include firm size (SIZE), book-to-market ratio (BM), momentum (MOM), return on equity (ROE), asset growth (GROW), leverage (LEV), idiosyncratic volatility (IVOL), and annual stock turnover (ASTO). The sample covers 2008-2022.

Name	Obs.	Mean	SD	Min	p25	p50	p75	Max
KV	29,369	0.130	0.161	0.003	0.031	0.072	0.160	0.907
AM	29,369	0.499	0.565	0.017	0.142	0.302	0.624	3.060
MOX	29,369	-0.002	0.065	-0.141	-0.041	-0.012	0.023	0.260
MOD	29,369	0.193	0.395	0.000	0.000	0.000	0.000	1.000
SIZE	29,369	22.070	1.132	19.784	21.294	21.998	22.744	25.293
BM	29,369	0.375	0.295	0.020	0.163	0.297	0.502	1.509
MOM	29,369	0.190	0.566	-0.656	-0.195	0.069	0.415	2.265
ROE	29,369	0.057	0.059	-0.147	0.023	0.051	0.088	0.232
GROW	29,369	0.297	0.510	-0.241	0.033	0.130	0.335	2.852
LEV	29,369	0.412	0.207	0.056	0.244	0.404	0.569	0.888
IVOL	29,369	0.118	0.057	0.036	0.076	0.107	0.149	0.301
ASTO	29,369	4.703	3.245	0.453	2.252	3.864	6.393	15.132

Table 2 Correlation matrix

This table reports the Pearson correlation coefficients between variables. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
KV	(1)	1.000											
AM	(2)	0.720***	1.000										
MOX	(3)	0.099***	0.084***	1.000									
MOD	(4)	0.116***	0.077***	0.029***	1.000								
SIZE	(5)	-0.368***	-0.493***	-0.028***	-0.048***	1.000							
BM	(6)	-0.266***	-0.280***	-0.117***	-0.021***	0.109***	1.000						
MOM	(7)	0.023***	0.006	0.029***	0.014**	0.193***	-0.337***	1.000					
ROE	(8)	0.244***	0.216***	0.104***	0.083***	-0.008	-0.233***	-0.093***	1.000				
GROW	(9)	0.277***	0.293***	0.104***	0.110***	-0.177***	-0.116***	-0.103***	0.341***	1.000			
LEV	(10)	-0.214***	-0.258***	-0.024***	-0.092***	0.224***	0.160***	0.058***	-0.401***	-0.183***	1.000		
IVOL	(11)	0.099***	0.056***	0.071***	0.089***	0.028***	-0.304***	0.310***	-0.004	0.042***	-0.035***	1.000	
ASTO	(12)	-0.019***	0.008	0.028***	0.026***	-0.144***	-0.299***	0.347***	-0.101***	-0.009	-0.069***	0.268***	1.000

Table 3 Managerial overconfidence and information opacity

This table reports OLS regression results examining the relationship between managerial overconfidence and information opacity with industry-year fixed effects. The overconfidence measures are MOX in columns (1)-(2) and MOD in columns (3)-(4). The dependent variables are KV in columns (1) and (3), and AM in columns (2) and (4). All regressions include control variables. Standard errors are clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1) KV_t	(2) AM_t	(3) KV_t	(4) AM_t
MOX_{t-1}	**0.108*** **	**0.251*** **		
	(6.673)	**(4.903)**		
MOD_{t-1}			**0.013*** **	**0.067*** **
			(3.755)	**(5.725)**
$SIZE_{t-1}$	-0.052***	-0.251***	-0.052***	-0.249***
	(-43.645)	(-57.178)	(-43.161)	(-56.645)
BM_{t-1}	-0.088***	-0.291***	-0.091***	-0.298***
	(-21.827)	(-19.997)	(-22.491)	(-20.608)
MOM_{t-1}	0.025***	0.100***	0.025***	0.100***
	(10.169)	(13.215)	(10.160)	(13.146)
ROE_{t-1}	0.325***	0.895***	0.330***	0.896***
	(14.973)	(12.279)	(15.306)	(12.365)
$GROW_{t-1}$	0.042***	0.146***	0.042***	0.144***
	(14.863)	(16.035)	(14.926)	(15.901)
LEV_{t-1}	-0.031***	-0.171***	-0.030***	-0.169***
	(-4.496)	(-7.231)	(-4.385)	(-7.182)
$IVOL_{t-1}$	0.131***	0.389***	0.135***	0.392***
	(7.791)	(7.336)	(7.958)	(7.345)
$ASTO_{t-1}$	-0.009***	-0.033***	-0.009***	-0.033***
	(-22.903)	(-26.019)	(-22.829)	(-26.052)
Intercept	1.312***	6.217***	1.303***	6.161***
	(49.067)	(62.080)	(48.358)	(61.335)
Observations	29,369	29,369	29,369	29,369
Adj R^2	0.312	0.431	0.311	0.431
Industry F.E.	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y

Table 4 Board Confucian culture background and the overconfidence-opacity relation
managerial overconfidence and information opacity using industry-year fixed effects. CONF measures firm-level Confucian culture intensity based on the number of Confucian temples within 200 km of the corporate registration city. CHRC measures the chairperson's Confucian culture background based on temples within 200 km of the chairperson's birthplace. Panel A reports interactions with CONF, and Panel B reports interactions with CHRC. Control variables are included but omitted for brevity. Standard errors are clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1) KV_t	(2) AM_t	(3) KV_t	(4) AM_t
Panel A Moderating effect of board's Confucian culture				
$CONF_{t-1}$	0.004**	0.004	0.001	-0.001
	(2.133)	(0.730)	(0.707)	(-0.182)
MOX_{t-1}	-0.066	-0.143		
	(-1.445)	(-0.903)		
MOD_{t-1}			-0.020**	-0.006
			(-2.196)	(-0.208)
$CONF_{t-1} \times MOX_{t-1}$	**0.066*** **	**0.150** **		
	(3.787)	**(2.552)**		
$CONF_{t-1} \times MOD_{t-1}$			**0.012*** **	**0.026*** **
			(3.767)	**(2.617)**
Control	Y	Y	Y	Y
Industry F.E.	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y
Observations	29,369	29,369	29,369	29,369
Adj R^2	0.313	0.431	0.311	0.431
Panel B The effect of chairperson's Confucian culture				
$CHRC_{t-1}$	-0.001	-0.006	-0.001	-0.007
	(-0.654)	(-0.885)	(-0.670)	(-0.937)
MOX_{t-1}	-0.018	0.182		
	(-0.253)	(0.744)		
MOD_{t-1}			0.024	0.077
			(1.254)	(1.196)
$CHRC_{t-1} \times MOX_{t-1}$	**0.021**	**-0.015**		
	(0.813)	**(-0.162)**		
$CHRC_{t-1} \times MOD_{t-1}$			**-0.002**	**0.002**
			(-0.232)	**(0.072)**
Control	Y	Y	Y	Y
Industry F.E.	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y
Observations	12,215	12,215	12,215	12,215
Adj R^2	0.340	0.449	0.341	0.451

Table 5 Managerial overconfidence, analyst coverage, and information opacity

This table examines how analyst coverage moderates the relationship between managerial overconfidence and information opacity using industry-year fixed effects. ANA is the number of independent analysts following the firm. The interaction terms are ANA × MOX in columns (1)-(2) and ANA × MOD in columns (3)-(4). The dependent variables are KV in columns (1) and (3), and AM in columns (2) and (4). Standard errors are clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1) KV_t	(2) AM_t	(3) KV_t	(4) AM_t
ANA_{t-1}	0.065***	0.056	0.051***	0.023
	(4.759)	(1.306)	(3.677)	(0.498)
MOX_{t-1}	0.125***	0.286***		
	(7.318)	(5.176)		
MOD_{t-1}			0.011***	0.061***
			(2.978)	(5.122)
$ANA_{t-1} \times MOX_{t-1}$	**-0.711*** **	**-1.256***		
	(-3.786)	**(-1.928)**		
$ANA_{t-1} \times MOD_{t-1}$			**-0.093****	**-0.227***
			(2.081)	**(1.828)**
$SIZE_{t-1}$	-0.053***	-0.252***	-0.052***	-0.250***
	(-43.927)	(-57.198)	(-43.502)	(-56.710)
BM_{t-1}	-0.087***	-0.291***	-0.090***	-0.297***
	(-21.728)	(-19.941)	(-22.355)	(-20.529)
MOM_{t-1}	0.025***	0.100***	0.025***	0.100***
	(10.175)	(13.242)	(10.127)	(13.148)
ROE_{t-1}	0.317***	0.887***	0.324***	0.890***
	(14.698)	(12.192)	(15.092)	(12.311)
$GROW_{t-1}$	0.042***	0.146***	0.042***	0.144***
	(14.763)	(16.000)	(14.798)	(15.847)
LEV_{t-1}	-0.031***	-0.171***	-0.031***	-0.170***
	(-4.529)	(-7.245)	(-4.417)	(-7.199)
$IVOL_{t-1}$	0.130***	0.388***	0.133***	0.389***
	(7.739)	(7.320)	(7.849)	(7.284)
$ASTO_{t-1}$	-0.009***	-0.033***	-0.009***	-0.033***
	(-22.763)	(-25.975)	(-22.631)	(-25.962)
Intercept	1.326***	6.228***	1.318***	6.177***
	(49.376)	(62.196)	(48.737)	(61.491)
Observations	29,369	29,369	29,369	29,369
Adj R^2	0.313	0.431	0.312	0.431
Industry F.E.	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y

Table 6 Managerial overconfidence, monitoring investors, and information opacity

This table examines how institutional monitoring moderates the relationship between managerial overconfidence and information opacity using industry-year fixed effects. INST is the percentage of shares held by long-term institutional investors. The interaction terms are INST × MOX in columns (1)-(2) and INST × MOD in columns (3)-(4). The dependent variables are KV in columns (1) and (3), and AM in columns (2) and (4). Standard errors are clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1) KV_t	(2) AM_t	(3) KV_t	(4) AM_t
$INST_{t-1}$	0.001***	0.002***	0.001***	0.002***
	(9.661)	(7.956)	(10.112)	(8.768)
MOX_{t-1}	0.199***	0.439***		
	(5.485)	(3.944)		
MOD_{t-1}			0.022***	0.128***
			(2.814)	(4.726)
$INST_{t-1} \times MOX_{t-1}$	**-0.002*** **	**-0.004** **		
	(-3.135)	**(-2.119)**		
$INST_{t-1} \times MOD_{t-1}$			**-0.0004** **	**-0.002*** **
			(-2.573)	**(-4.136)**
$SIZE_{t-1}$	-0.055***	-0.261***	-0.055***	-0.260***
	(-44.478)	(-57.256)	(-44.233)	(-56.741)
BM_{t-1}	-0.087***	-0.288***	-0.089***	-0.294***
	(-21.721)	(-19.885)	(-22.304)	(-20.445)
MOM_{t-1}	0.024***	0.098***	0.024***	0.098***
	(9.829)	(12.878)	(9.796)	(12.805)
ROE_{t-1}	0.309***	0.855***	0.319***	0.869***
	(14.240)	(11.698)	(14.842)	(12.005)
$GROW_{t-1}$	0.041***	0.143***	0.042***	0.144***
	(14.511)	(15.698)	(14.718)	(15.733)
LEV_{t-1}	-0.041***	-0.196***	-0.039***	-0.195***
	(-5.920)	(-8.280)	(-5.752)	(-8.227)
$IVOL_{t-1}$	0.126***	0.374***	0.131***	0.384***
	(7.510)	(7.077)	(7.780)	(7.230)
$ASTO_{t-1}$	-0.007***	-0.029***	-0.007***	-0.029***
	(-19.086)	(-22.672)	(-18.871)	(-22.566)
Intercept	1.361***	6.351***	1.359***	6.333***
	(49.860)	(62.393)	(49.457)	(61.742)
Observations	29,369	29,369	29,369	29,369
Adj R^2	0.318	0.434	0.316	0.434
Industry F.E.	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y

Table 7 Endogeneity check: Two-Stage Least-Squares (2SLS) method

This table reports 2SLS regression results addressing potential endogeneity concerns using industry-year fixed effects. Column (1) presents first-stage results with the overconfidence proxy as the dependent variable. Columns (2)-(3) present second-stage results for KV and AM, respectively. Panel A uses MOX as an overconfidence measure, and Panel B uses MOD. Managerial overconfidence is instrumented using the natural logarithm of managerial compensation. Control variables are included but omitted for brevity. Standard errors are clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1) MO_{t-1}	(2) KV_t	(3) AM_t
Panel A: Managerial Overconfidence (MO) proxy is MOX			
IV_{t-1}	**0.013*** **		
	(3.129)		
Instrumented MO_{t-1}		**1.827****	**5.460****
		(2.439)	**(2.174)**
Control	Y	Y	Y
Industry F.E.	Y	Y	Y
Year F.E.	Y	Y	Y
Observations	29,369	29,369	29,369
F statistic	58.08	245.78	372.66
Kleibergen-Paap rk LM stat	9.82***		
Cragg-Donald Wald stat	29.92***		
Panel B: Managerial Overconfidence (MO) proxy is MOD			
IV_{t-1}	**0.066*** **		
	(4.327)		
Instrumented MO_{t-1}		**0.353*** **	**1.056****
		(2.770)	**(2.465)**
Control	Y	Y	Y
Industry F.E.	Y	Y	Y
Year F.E.	Y	Y	Y
Observations	29,369	29,369	29,369
F statistic	48.12	258.40	412.71
Kleibergen-Paap rk LM stat	18.46***		
Cragg-Donald Wald stat	38.21***		

Table 8 Endogeneity check: Heckman two-step method

This table reports second-stage results from the Heckman two-step procedure addressing sample selection bias. The overconfidence measures are MOX in columns (1)-(2) and MOD in columns (3)-(4). IMR is the inverse Mills ratio from the first-stage selection equation. The dependent variables are KV in columns (1) and (3), and AM in columns (2) and (4). Standard errors are clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1) KV_t	(2) AM_t	(3) KV_t	(4) AM_t
MOX_{t-1}	**0.110*** **	**0.262*** **		
	(6.862)	**(5.140)**		
MOD_{t-1}			**0.012*** **	**0.063*** **
			(3.495)	**(5.413)**
IMR $_{t-1}$	**0.609*** **	**2.452*** **	**0.572*** **	**2.311*** **
	(7.372)	**(8.515)**	**(6.896)**	**(8.056)**
$SIZE_{t-1}$	-0.053***	-0.256***	-0.053***	-0.254***
	(-44.373)	(-58.570)	(-43.751)	(-57.900)
BM_{t-1}	-0.094***	-0.316***	-0.096***	-0.321***
	(-23.173)	(-21.833)	(-23.733)	(-22.337)
MOM_{t-1}	0.025***	0.101***	0.025***	0.101***
	(10.269)	(13.357)	(10.259)	(13.287)
ROE_{t-1}	0.531***	1.725***	0.524***	1.681***
	(15.514)	(14.436)	(15.288)	(14.115)
$GROW_{t-1}$	0.063***	0.230***	0.062***	0.224***
	(14.202)	(15.614)	(13.907)	(15.208)
LEV_{t-1}	-0.010	-0.084***	-0.010	-0.088***
	(-1.323)	(-3.410)	(-1.402)	(-3.557)
$IVOL_{t-1}$	0.131***	0.387***	0.135***	0.392***
	(7.774)	(7.319)	(7.956)	(7.348)
$ASTO_{t-1}$	-0.008***	-0.032***	-0.008***	-0.032***
	(-22.448)	(-25.404)	(-22.392)	(-25.458)
Intercept	1.005***	4.978***	1.015***	4.997***
	(20.604)	(28.014)	(20.841)	(28.267)
Observations	29,369	29,369	29,369	29,369
Adj R^2	0.313	0.433	0.312	0.433
Industry F.E.	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y

Table 9 Robustness checks: Alternative managerial overconfidence proxies

This table reports robustness tests using alternative managerial overconfidence proxies with industry-year fixed effects. MOT is the residual from an industry-year regression of managerial tone on annual revenue growth, where tone is measured as the natural logarithm of the difference between positive and negative words in MD&A disclosures. MOF equals one if management earnings forecasts exceed actual earnings, and zero otherwise. The dependent variables are KV in columns (1) and (3), and AM in columns (2) and (4). Standard errors are clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1) KV_t	(2) AM_t	(3) KV_t	(4) AM_t
MOT_{t-1}	**0.013*** **	**0.016** **		
	(5.388)	**(1.963)**		
MOF_{t-1}			**0.010*** **	**0.049*** **
			(2.667)	**(3.769)**
$SIZE_{t-1}$	-0.053***	-0.254***	-0.053***	-0.271***
	(-43.738)	(-57.249)	(-36.607)	(-49.565)
BM_{t-1}	-0.090***	-0.299***	-0.088***	-0.295***
	(-22.961)	(-20.912)	(-18.747)	(-17.422)
MOM_{t-1}	0.025***	0.103***	0.024***	0.108***
	(10.257)	(13.422)	(7.891)	(11.422)
ROE_{t-1}	0.338***	0.936***	0.325***	0.952***
	(15.650)	(12.920)	(13.478)	(11.557)
$GROW_{t-1}$	0.044***	0.153***	0.033***	0.123***
	(15.371)	(16.579)	(10.724)	(11.825)
LEV_{t-1}	-0.028***	-0.166***	-0.035***	-0.166***
	(-4.177)	(-7.223)	(-4.450)	(-5.970)
$IVOL_{t-1}$	0.143***	0.421***	0.105***	0.416***
	(8.366)	(7.837)	(5.180)	(6.257)
$ASTO_{t-1}$	-0.009***	-0.033***	-0.007***	-0.030***
	(-22.918)	(-26.491)	(-16.894)	(-20.085)
Intercept	1.321***	6.280***	1.315***	6.628***
	(49.025)	(61.797)	(41.374)	(54.003)
Observations	29,369	29,369	17,275	17,275
Adj R^2	0.303	0.422	0.307	0.437
Industry F.E.	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y

Table 10 Robustness checks: Alternative dependent variable proxies

This table reports robustness tests using alternative information opacity measures with industry-year fixed effects. SYN is stock price synchronicity following Jin & Myers (2006), , where higher values indicate lower stock price informativeness. AI is the adjusted illiquidity measure from Kang & Zhang (2014), , computed as Amihud's measure multiplied by one plus the percentage of zero-volume days. The overconfidence measures are MOX in columns (1)-(2) and MOD in columns (3)-(4). Standard errors are clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1) SYN_t	(2) AI_t	(3) SYN_t	(4) AI_t
MOX_{t-1}	**0.274*** **	**0.218** **		
	(3.207)	**(2.533)**		
MOD_{t-1}			**0.039** **	**0.077*** **
			(2.118)	**(3.770)**
$SIZE_{t-1}$	0.065***	-0.283***	0.063***	-0.281***
	(8.924)	(-45.411)	(8.572)	(-45.090)
BM_{t-1}	0.385***	-0.318***	0.378***	-0.323***
	(13.290)	(-17.228)	(13.142)	(-17.354)
MOM_{t-1}	-0.072***	0.140***	-0.072***	0.140***
	(-5.697)	(10.378)	(-5.621)	(10.352)
ROE_{t-1}	0.412***	0.860***	0.446***	0.855***
	(3.415)	(8.082)	(3.698)	(8.113)
$GROW_{t-1}$	-0.016	0.176***	-0.011	0.173***
	(-1.412)	(12.313)	(-0.950)	(12.297)
LEV_{t-1}	-0.012	-0.206***	-0.009	-0.205***
	(-0.318)	(-6.078)	(-0.247)	(-6.061)
$IVOL_{t-1}$	-0.340***	0.528***	-0.319***	0.528***
	(-3.105)	(5.800)	(-2.915)	(5.741)
$ASTO_{t-1}$	0.032***	-0.036***	0.032***	-0.037***
	(15.367)	(-20.199)	(15.389)	(-20.239)
Intercept	-2.281***	6.974***	-2.238***	6.908***
	(-14.314)	(48.906)	(-13.854)	(48.499)
Observations	29,369	29,369	29,369	29,369
Adj R^2	0.284	0.245	0.284	0.245
Industry F.E.	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y

Appendix 1: Variable definitions

Table A.1 Definitions of variables

This table gives definitions of independent variables, dependent variables, mechanism variables, and control variables.

Variable	Definition
Panel A Independent variable	
MOX	The residual from industry-year regression of the ratio of capital expenditures to lagged total assets on return on assets.
MOD	A binary variable equal to 1 if a chairperson's demographic composite score is greater than 3 and 0 otherwise, where the score is derived from trait-based dummy indicators including chairperson age, tenure, education, gender, and chair-CEO duality.
Panel B Dependent variable	
KV	The disclosure quality index measured as the coefficient from a regression of adjusted trading volume on price returns per Kim & Verrecchia (2001), where higher values indicate greater information opacity.
AM	The Amihud's (2002) illiquidity measure, which is the daily ratio of absolute stock return to its dollar volume, where higher values indicate greater information opacity.
Panel C Mechanism variable	
ANA	The number of independent financial analysts following a firm per Kent et al. (2024) .
INST	The shareholding of long-term institutional investors as proposed in Fich et al. (2015).
CONF	Corporate board's Confucian culture proxy measured with the natural logarithm of one plus the number of Confucian temples within 200 km of corporate registration city.
CHRC	Board chairperson's Confucian culture proxy measured with the natural logarithm of one plus the number of Confucian temples within 200 km of chairperson's birthplace.
Panel E Control variable	
SIZE	Natural logarithmic of a firm's market capitalization.
BM	Book-to-market ratio.
MOM	The 11-month return momentum, skipping the most recent month.
ROE	Return on equity.
GROW	Annual growth rate of book value of total assets.
LEV	The ratio of total debt to total assets.
IVOL	Idiosyncratic risk measured as the standard deviation of residuals from the Fama-French three-factor model.
ASTO	Annual share turnover.

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